



## REMARKS

Reconsideration of the rejections of claims 1 and 3-7 under 35 USC §103(a) in view of U.S. Patent Publication No. 2002/0080121 (Son), and of claim 2 under 35 USC §103(a) in view of the Son publication and "admitted prior art," is respectfully requested based on the following distinctions between the claimed invention and the device disclosed in the Son patent:

- The claimed invention includes a first photosensor to receive diffusing light and a second sensor to receive reflected light, whereas the two sensors described in the Son patent are both arranged to receive reflected light;
- The claimed invention includes a microprocessor for computing the value of "transmitting light" that passes through the reflective plane, whereas the device described in the Son patent only takes into account reflecting light as does not consider, much less attempt to calculate, transmitting light passing *through* the reflecting surface.

According to the claimed invention, the mouse can determine whether a surface is transparent or opaque, by adding up the reflected and diffusing light and comparing it with the incident light. If very little light reaches the two sensors, then the surface is determined by the microprocessor to be transparent, and appropriate adjustments are made. In addition, the roughness of the surface can be determined by comparing the amount of light that reaches the reflected light sensor and the amount of light that reaches the diffusing light sensor, and additional adjustments can be made if necessary.

In contrast, Son does not attempt to calculate the transparency of a surface based on incident light that fails to reach either of the two sensors. Instead, Son positions one sensor to receive light reflected from a first surface, and one sensor to receive light that passes through the first surface and is reflected back through the first surface by a second surface. No provision is made to compare the received reflected light with the incident light to determine how much light has been transmitted and does *not* reach either sensor. Unless there is a second surface positioned to reflect light back to second sensor, the Son mouse will not operate.



It is true that the first sensor might be said to receive “diffusing” light, as illustrated in Fig. 7 of the Son patent. However, in that case the Son publication teaches the claimed first sensor but not the second, since the second sensor of Son is positioned to receive light reflected from a *different* surface than the first sensor. Furthermore, Son does not even attempt to integrate the “diffusing” light in the manner of the claimed microprocessor to obtain the “**total diffusing light**,” as recited in claim 1. In order to determine how much light has passed through a surface, it is necessary to account for all of the incident light, which can only be done by calculation since the sensors inherently do not capture all reflected and diffused light.

According to the Examiner, adding a microprocessor to the mouse of Son would be obvious because the result would be a smaller mouse. However, Son does not include any circuitry for performing the functions of the claimed microprocessor, and in particular for calculating “total diffusing light” as well as “a value of transmitting light” (the latter being the difference between incident light and reflecting light plus total diffusing light). Since Son does not determine the type of surface, but rather merely tries to detect light transmitted from a rough upper surface or an appropriately positioned glass/opaque lower surface combination, Son does not teach any *need* for a microprocessor of the type claimed. It could not possibly have been obvious to minimize circuitry for calculating total diffusing light and transmitting light when Son does not teach such circuitry in the first place.

In summary, the Son patent has in common with the claimed invention the inclusion of two sensors. However, the two sensors of Son are not used for the same purpose as those of the claimed invention, namely by providing data that can be used to calculate the transparency of a surface based on how much of the incident light is reflected and diffused, and therefore the two sensors of Son do not anticipate the claimed sensors. Moreover, Son does not disclose or even remotely suggest the claimed calculations (total diffusing light and transmitting light), and therefore Son could not have suggested the inclusion of a microprocessor having the claimed functions. Therefore, withdrawal of the rejection of claims 1 and 3-7 based on the Son patent is respectfully requested.



Finally, with respect to claim 2, it is respectfully noted that while the energy conservation law is certainly known, the Son patent does not disclose or suggest use of the formula to calculate transmitting light (*i.e.*, incident light that does not reach either sensor), as claimed. As shown in Figs. 7 and 8 of Son, Son positions its sensors to capture both reflected light from a first surface (Fig. 7) and reflected light from a second surface (Fig. 8). Son does not attempt to compare the light reaching either sensor with the total incident light to determine how much has been transmitted, and has no use for such information. One of Son's sensors is for light reflected from one surface and one is for light transmitted by a second surface, and any lost light is simply unaccounted for. Sons makes no attempt to calculate total diffusing light (total light reflected from the first surface that reaches a diffusing light sensor and not a reflecting light sensor), and no attempt or need to subtract the total diffusing light plus the reflecting light from then incident light to determine how much light has been transmitted through the surface. The mere fact that the conservation of energy law is known does not make it obvious to perform calculations based on the law when, as in Son's mouse, there is no obvious need to do so. Therefore, withdrawal of the rejection of claim 2 under 35 USC §103(a) is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC



By: BENJAMIN E. URCIA  
Registration No. 33,805

Date: October 10, 2006

BACON & THOMAS, PLLC  
625 Slaters Lane, 4th Floor



Serial Number 10/687,670

Alexandria, Virginia 22314

Telephone: (703) 683-0500

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